Claim 41. (currently amended) A method for spotting solution contained in stacked microplates onto slides positioned at a slide positioning station, comprising the steps of:

A)   acquiring a high capacity microarrayer for spotting solution onto slides, said high capacity microarrayer comprising:

1) a solution removal area,

2) a slide positioning means for positioning slides,

3) a dispense head means for accessing said solution removal area and for removing solution from a solution filled microplate at said solution removal area to spot a slide at said slide positioning means, and

4) a microplate indexing means for sequentially indexing solution filled microplates to said solution removal area, wherein said microplate indexing means comprises:

a) at least one input stacking chamber means for stacking microplates,

b) at least one output stacking chamber means for stacking microplates,

c) a walking beam indexer means disposed between said at least one input stacking chamber means and said at least one output stacking chamber means wherein said walking beam indexer means is for moving microplates from said at least one input stacking chamber means to said at least one output stacking chamber means, and

d) a lid lifter means for lifting the lid off each microplate to permit the microplate to be accessed by said dispense head means for solution removal, and after solution is removed to replace the lid

B)   removing solution with said dispense head means from said solution filled microplate at said solution removal area, and

C)   spotting at least one of said slides positioned at said slide positioning means.

A high-capacity microarrayer for spotting-solution onto slides, comprising:

A)   a solution removal area,

B)   a slide positioning means for positioning slides,

C)   a dispense head means for accessing said solution removal area and for removing
      solution from a solution-filled microplate at said solution removal area to spot a
      slide at said slide positioning means, and

D)   a microplate indexing means for sequentially indexing solution-filled microplates
      to said solution removal area, wherein said microplate indexing means
      comprises:

1.   at least one input stacking chamber means for stacking microplates,

2.   at least one output stacking chamber means for stacking microplates,

3.   a walking beam indexer means disposed between said at least one input
      stacking chamber means and said at least one output stacking chamber means
      wherein said walking beam indexer means is for moving microplates from
      said at least one input stacking chamber means to said at least one output
      stacking chamber means, and

4.   a lid lifter means for lifting the lid off each microplate to permit the
      microplate to be accessed by said dispense head means for solution removal,
      and after solution is removed to replace the lid.

Claim 42. (new) A high capacity microarrayer for spotting solution onto slides,
comprising:

A) a solution removal area,

B) a microplate stacking device for stacking microplates,

C) a microplate indexing device for sequentially indexing microplates containing
    solution from said microplate stacking device to said solution removal area and
    for sequentially indexing said microplates from said solution removal area to said
    microplate stacking device after at least some of said solution has been removed,

D) a slide positioning station for positioning slides, and

E) a dispense head for accessing said solution removal area and for removing
    solution from a solution filled microplate at said solution removal area to spot a
    slide at said slide positioning station,

F) at least one light source capable of illuminating the slides,

13

G) at least one camera operating in conjunction with said at least one light source, said at least one camera capable of acquiring and transmitting slide image data,

H) a computer programmed to:

   1) receive said slide image data from said at least one camera,

   2) analyze said slide image data, and

   3) generate post analysis data based on said analysis of said slide image data, wherein said post analysis data comprises information relating to the success or failure of said microarrayer to successfully spot solution onto the slides, and

I) an adjustment means for permitting adjustments to be made to said spotting of solution onto the slides wherein said adjustments are made based on said post analysis data,

J) at least one cleaning station, comprising:

   1) a sonic cleaner,

   2) a rinsing fountain, and

   3) a vacuum manifold.

14